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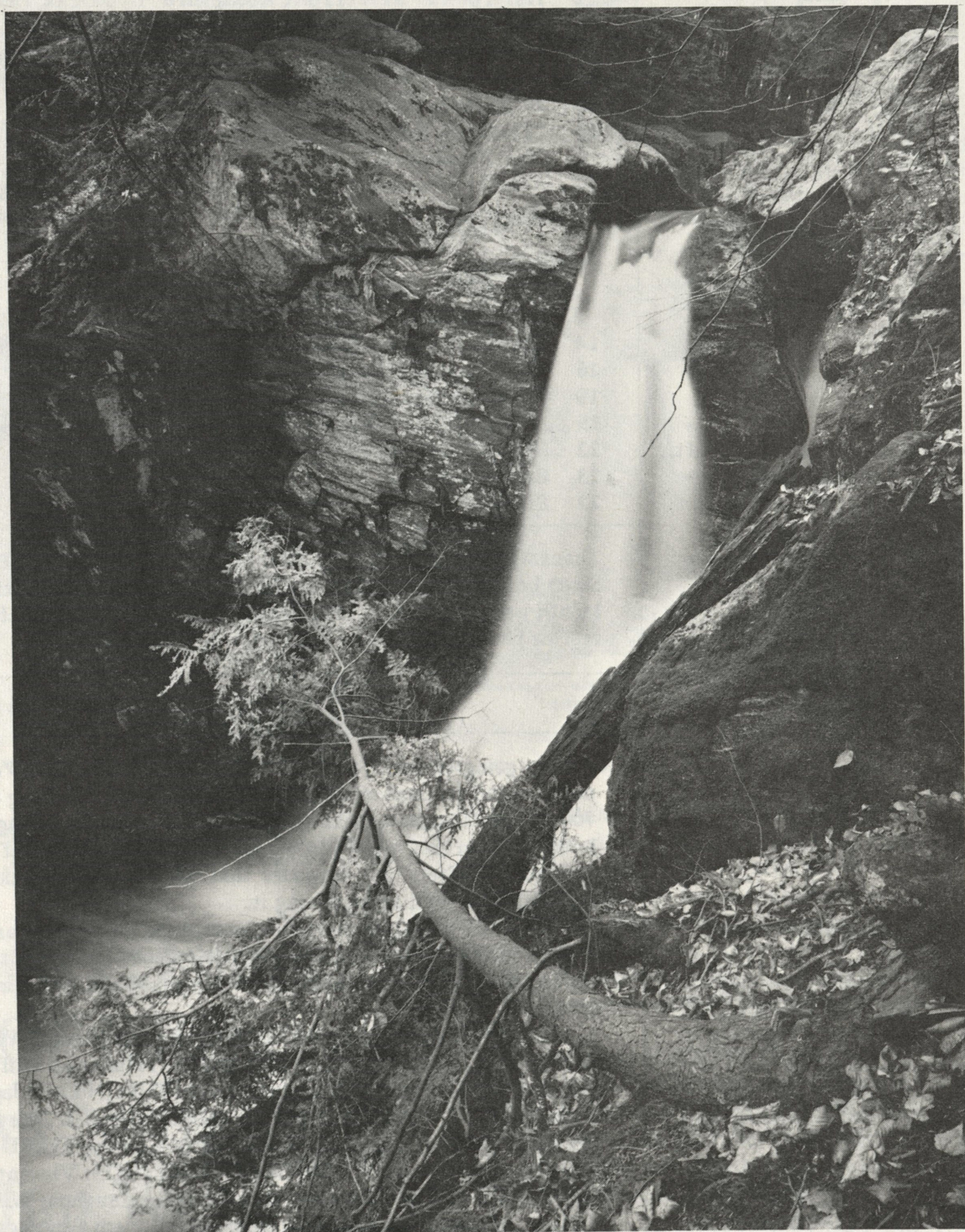
Conn. Documents

CONNECTICUT

# ENVIRONMENT



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RIVERS MONTH

June 1991



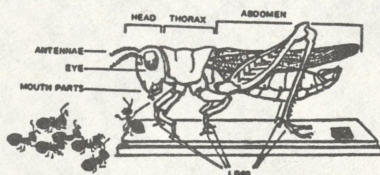


# CONNECTICUT ENVIRONMENT

June 1991  
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Page 14



Page 16.

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Simsbury; Granby Falls

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Thanks to Carolyn Hughes, coordinator of DEP's Rivers Program, and Sarah Leff, of American Rivers, Inc., for their assistance with this Rivers Month issue. Thanks, too, to Rivers Photo Contest entrants for letting us reprint photos on the cover and pages 3, 6, 11, and 13.

## Editor's Note

I'm going to cheat, here, this month and insert some "late breaking news" — the winners of the Rivers Photo Contest. Looking at the nearly 700 photos submitted, looking at Connecticut's rivers through the eyes of hundreds of artists, was a moving reminder of the amount of sheer beauty Connecticut offers ... a reminder that we all should make a point of enjoying it as well as protecting it.

We invite you all to share the pleasure: see the winners and a selection of other entries during June in the concourse between the State Capitol and the Legislative Office Building (weekdays, 8:30 a.m. to 5 p.m.; Saturdays, 10 a.m. to 3 p.m.).

Contest winners are: **GRAND PRIZE:** Ruth Hanks, West Hartford. **SCENIC/ARTISTIC CLASS: FIRST PRIZE:** Thomas H. Clift, Simsbury; **SECOND PRIZE:** Mark W. Brendel, Vernon; **THIRD PRIZE:** Joseph J. Azoti, Orange. **RIVER USE CLASS: FIRST PRIZE:** Barbara J. Zujewski, Easton; **SECOND PRIZE:** Gregory A. Kriss, North Canton; **THIRD PRIZE:** Art Gingert, West Cornwall. **HONORABLE MENTION:** Vincent L. Orlando, Sr., Prospect; Ken W. Sasso, Meriden; David McCaughan, Wilton; John K. Pringle, Bristol; Thomas Carver, Stonington; Ruth Bergengren, Glastonbury; and Tony Reczek, Middletown.

Judges were Michael Bell of New Haven, Robert Benson of Hartford, and Bill Hubbell, of Greenwich.

M.C.





*Quinnipiac River Bridge, New Haven Harbor, from Yale Boathouse. (Photo: New Haven, William J. Grego)*

## June Is Rivers Month

# Don't Think Of Rivers As Nothing But Water

by Sarah Faulkner Leff

GRAB A PADDLE, HOP ON A TUBE, wade into that eddy, or just sit on a bank and enjoy the scenery — June is the month to celebrate our rivers!

June is designated across the country as the 10th annual American Rivers Month in an effort to focus public attention on the natural waterways of America. Clean, free-flowing rivers are essential, both for the role they play in our environment and for the many uses we make of them.

From our rocky, hilly highlands and rich river valleys and to our coastal estuaries, Connecticut is a vast network of rivers and streams. Our major rivers attracted our first settlers. Larger cities grew along these rivers, while smaller towns grew up where water could be harnessed for mills or used for industry.

*Sarah Faulkner Leff is the Connecticut representative for American Rivers, Inc., the nation's principal river protection organization. She serves on the Rivers Advisory Committee and the Land Conservation Coalition for Connecticut.*



We are even more dependent on our rivers and streams today. Connecticut residents rely upon them for public water supply, waste disposal, power generation, and recreation. They play an important part in our agriculture and transportation. They are critical for fish and wildlife habitat as well as for human "quality of life." They support our economy and renew our bodies and spirits. They play a vital role in the environment in which we live.

Because of our dense population and rapid rate of development, conflicts among uses of our rivers are increasing. One use of water may leave a river unfit or unavailable for other uses. Diverting water for drinking or irrigation, for example, leaves less water in the river. A lower river reduces wildlife and recreational uses and makes it harder for the river to dilute sewage and industrial wastes. Balancing resource use and conservation is increasingly complex.

Nationally, free-flowing rivers and their associated lands are disappearing at a rate that far exceeds that at which they are being protected. A maximum of 19,000 river miles (about one-half of one percent of all our country's rivers) are protected permanently, while a staggering 600,000 miles (17 percent) lie backed up behind dams.

Connecticut is below average in river corridor protection. Only a small percentage of our over 8,400 miles of rivers and streams are permanently protected, and there is no overall management plan in place that addresses rivers as systems.

Up to now, Connecticut has regulated river uses on a case-by-case basis. We need, however, to view rivers as systems, waterways as inseparably connected to the land that surrounds them. As environmental writer Hal Borland said, "Any river is really the summation of a whole valley .... To think of any river as nothing but water is to ignore the greater part of it."

Connecticut's regulations are incomplete in addressing the relationships of river shorelines to their waters as well as considering the upstream and downstream effects of water use and withdrawal.

State of



Connecticut

By His Excellency LOWELL P. WEICKER JR., Governor: an

## Official Statement

Connecticut's landscape is shaped by over 8,400 miles of rivers and streams. Our river corridors possess unique scenic, hydrologic, ecological, agricultural, historic and recreational value. They are a great economic, as well as natural, resource and support a multitude of uses. The rivers of Connecticut provide drinking water, carry away wastes, generate power, support agriculture, provide habitat for fish and wildlife, house archaeological sites, and through their scenic and recreational value contribute to public enjoyment, inspiration and well-being. Several major watersheds in Connecticut drain into Long Island Sound, affecting its environmental integrity.

The health and livelihood of Connecticut's residents depend considerably upon the vitality of our state's rivers and streams. It is essential that we respect these resources and manage them in a manner that will assure their use and enjoyment by many generations to come.

The state Rivers Management Program has made significant progress in the past year toward completing a thorough inventory and assessment of our river resources and building public awareness about the importance of river management. Many citizens have demonstrated their commitment to the protection and management of our rivers through their participation in program activities.

In recognition of the importance of the economic, recreational, natural and scenic value of our rivers, to build a greater awareness of the need to manage, protect and preserve our waterways as both an ecological and economic necessity, and, in conjunction with the national observance of American Rivers Month, I am pleased to designate June, 1991 as Rivers Month in Connecticut. I urge that all citizens gain deeper appreciation of the vital role that rivers play in the overall quality of life in our state and reaffirm their commitment to protecting the health of our river systems.



Governor

Progress is being made, however. The Department of Environmental Protection and the Rivers Advisory Committee are developing a comprehensive rivers assessment and management plan to address these needs.

Governor Lowell P. Weicker has officially declared June "Rivers Month." It is fitting that we reserve a month to reflect upon the many de-

mands we place on our rivers and the ways we can conserve and protect them.

As W. Kent Olsen, former president of American Rivers, said, "When protected, rivers serve as visible symbols of the care we take as temporary inhabitants and full time stewards of a living, profoundly beautiful heritage of nature."



# From Strolling to Trolling...

## Rivers offer a wide array of recreation

We've rounded up a collection of river-oriented events going on during June and on through the summer ... a list that's extensive but not exhaustive. We include a list of "river regulars" — boat trips, canoe rentals, canoe camping. If you can't join in for some of the special events, there are still ample opportunities for river recreation.

### Rivers Month Plus

#### June 1

American Rivers Month begins. Rivers Photo Contest prizes will be awarded at the Capitol in Hartford during the first week. Information: 566-5803.

#### June 3 - 9

National Fishing Week. Statewide. Information, 566-4477.

#### June 8

Free Fishing Day in Connecticut. Statewide. Fish free, no license required. Call for activities, 566-4477. All other fishing regulations (limits, etc.) apply.

#### June 8

Fifth annual Connecticut River Bass & Catfish Tournament. Riverside Park, Hartford. Registration, 5 a.m. Weigh-ins, 2 and 3 p.m. No fee. Prizes. No license required. Free fishing classes for kids. Sponsored by: D.E.P. Bureau of Fisheries, Riverfront Recapture, Central Connecticut Bassmasters, Hartford and East Hartford parks and recreation departments, Some Thing's Fishy Tackle Shop. Information: 293-0131.

#### June 8

King Phillip Cup Canoe Race, 14 mile flatwater race on the Farmington River. Start: 8:30 a.m., Route 4, Farmington. CT Canoe Racing Assn. Gerald DeSimas: 593-8813.

#### June 15

Riverfront Clean-Up. Charter Oak

Landing, Hartford, 9 a.m. - 12:30 p.m. Information: Riverfront Recapture, 293-0131.

#### June 15

Housatonic River Estuary Canoe Trip. The Nature Center for Environmental Activities and the New Canaan Nature Center. All equipment provided. Fee. Diane Worden: 227-7253.

#### June 15

Housatonic River talk at Bartholomew's Cobble, MA. Housatonic Valley Association and Trustees of the Reservation. 672-6678.

#### June 15

Shetucket River Days Canoe Cruise. 10 a.m., Lauter Park, Willimantic. CT Canoe Racing Association: Sue Audette: 456-4906.

#### June 16

Shetucket River Days Canoe Race. 1 p.m. start, Lauter Park, Willimantic. CT Canoe Racing Assn. Sue Audette: 456-4906.

#### June 16

Farmington River Hike with Sarah Leff of American Rivers. People's State Forest. Appalachian Mountain Club, Judy Snyder: 749-5411.

#### June 22

Farmington River Canoe Trip. Farmington River Watershed Association: 658-4442.

#### June 22

Quinnipiac River Canoe Cruise.

Quinnipiac River Watershed Association: 237-2237.

#### June 22 - 23

Strawberry Moon Powwow, Ferry Park, Route 160, Rocky Hill, 10 a.m. - 7 p.m. Connecticut River Powwow Society, Geoff Alson, 684-5407.

#### June 27

Music Under the Stars. Free concert, Charter Oak Landing, Hartford, 7 p.m. Information: Riverfront Recapture, 293-0131.

#### June 29

Mill River Canoe Trip and Hike, East Rock Park, New Haven. The Nature Center for Environmental Activities and East Rock Park. Diane Worden: 227-7253.

#### July through September

Hikes along the Quinnipiac River. Also, in August, a Quinnipiac River Tidal Marsh Canoe Trip. Quinnipiac River Watershed Assn.: 237-2237.

#### July, August, September

Community boating programs. Canoe, kayak, rowing shell instruction. Riverfront Recapture, 293-0131.

#### July, August

"Get Hooked on Fishing, Not on Drugs" youth fishing derbies. Riverfront Recapture, 293-0131.

#### July 4

Riverfest. Daylong celebration on Hartford's riverfront. Fireworks in Bushnell Park. Information:



Riverfront Recapture, 293-0131.

#### July 7

Mansfield Hollow Marathon. Seven mile flatwater race. Start: 11 a.m. Boat Launch, Mansfield Hollow State Park, Mansfield Center. CT Canoe Racing Association, Sue Audette, 456-4906.

#### July 10

Braggin' Rights Biathlon: canoe race and run. Start: 6:30 p.m. Boat Launch, Mansfield Hollow State Park, Mansfield Center. CT Canoe Racing Assn. Sue Audette, 456-4906.

#### July 11

Music Under the Stars. Free con-

cert, Charter Oak Landing, Hartford, 7 p.m. Information: Riverfront Recapture, 293-0131.

#### July 18

Music Under the Stars. Free concert, Charter Oak Landing, Hartford, 7 p.m. Information: Riverfront Recapture, 293-0131.

#### July 25

Music Under the Stars. Free concert, Charter Oak Landing, Hartford, 7 p.m. Information: Riverfront Recapture, 293-0131.

#### July 27

Canoe trip. Information: Riverfront Recapture, 293-0131.

#### July 28

Two, 7.5, 17 mile Connecticut River canoe competitions. Starts: 10 a.m., 10:30 a.m. Riverfront Park, Springfield, MA. CT Canoe Racing Assn. Bill Terbush, (413) 596-6096.

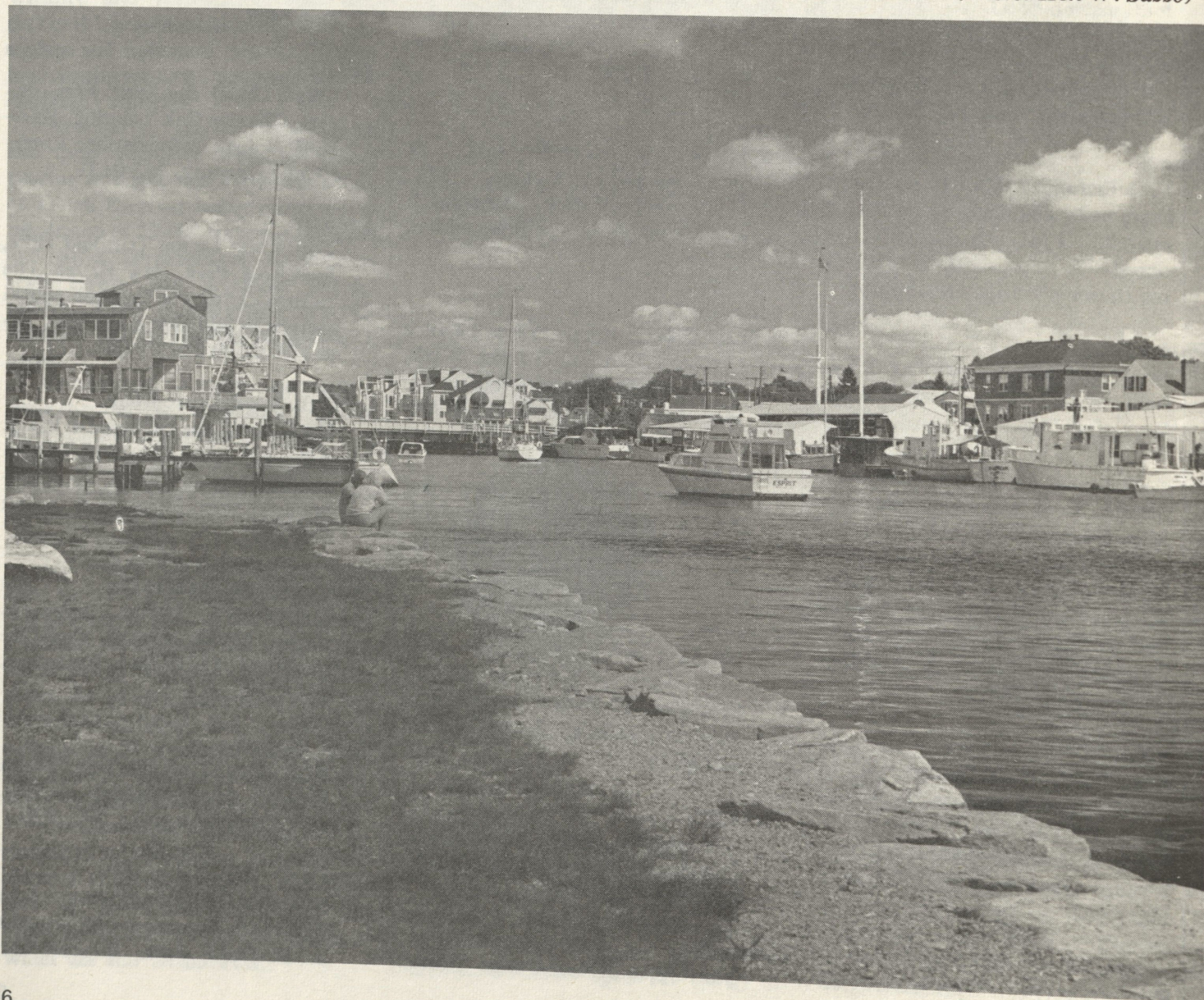
#### July 31

The Great Melon Race. Connecticut River. Start: 6:15 p.m. Route 5, East Hampton, MA. CT Canoe Racing Assn. Frank Stasz, (413) 527-3148.

#### August 4

Third Annual Riverfront Bass Classic. Riverside Park, Hartford. Riverfront Recapture, 293-0131.

*See the Mystic, as well as other major rivers, from the deck of one of the state's tour boats. (Photo: Ken W. Sasso)*





## August 10

Canoe trip. Information: Riverfront Recapture, 293-0131.

## August 11

Clinton Bluefish Canoe Race, 7.5 miles on the Hammonasset. Start: 12 noon, Clinton Town Beach. CT Canoe Racing Assn. Earle Roberts, 346-0068.

## August 16 -18

Quinnehtukqut Rendezvous and Native American Festival. Black powder muster, Early American reenactments, Indians in dance and drum competitions on the banks of the Connecticut Info: 282-1404.

## August 18

Tri-middletown Triathlon. Bike 26 miles, canoe six miles, run six miles. Start: 9:30 a.m., Dekoven Drive, Middletown. Larry Marino, 347-0827 (bus.) or 342-4222.

## August 23 - 25

The 7th Annual Connecticut River Powwow, Farmington Polo Grounds, Route 4, Farmington. Friday, 1-7 p.m. Saturday, Sunday, 10 a.m. - 7 p.m. Connecticut River Powwow Society. Information: Geoff Alson, 684-5407.

## August 24

Riverfront Festival: rowing regatta, free canoe rides, kayak demonstration, wacky races. Riverfront Recapture, 293-0131.

## August 25

1991 Harbor Day Canoe Race, Norwich Harbor on Thames River. Start: 3 p.m., Falls Ave. at American Wharf, Route 82, Norwich. CT Canoe Racing Assn., Ben Lathrop, 388-6466, or Ray Thiel, 889-9893.

## September 7

Canoe trip. Information: Riverfront Recapture, 293-0131.

## September 22

Nayaug Canoe Race, Connecticut River. Start: 1:30 p.m., South Glastonbury. CT Canoe Racing Assn. Dave Ahlgren, 633-5665.

# River Regulars

## River Canoeing, Kayaking, Tubing

Clarke Outdoors  
P.O. Box 105  
Lakeville, CT 06039  
672-6365

Down River Canoes  
Route 154  
Haddam, CT 06438  
346-3308 or 345-8355

High Adventure  
Simsbury, CT 06070  
651-3989

Huck Finn Adventures, Inc.  
9 Gemstone Drive  
Canton, CT 06022  
693-0385

Main Stream Canoes  
1 High Street  
New Hartford, CT  
379-6657

The Mountain Workshop  
Ridgefield, CT  
438-3640

North American Canoe Tours  
65 Black Point Road  
Niantic, CT 06357  
739-0791

River Running Expeditions, LTD  
85 Main Street  
Falls Village, CT 06031  
824-5579 or 824-5286

White Creek Expeditions  
New Canaan, Ct 06840  
966-0040

## River Rides, Large Boats

Big River Boat Tours  
Falls Village, CT  
824-1100  
Housatonic rides on the *River Jewel*

Camelot Cruises, Inc.  
One Marine Park  
Haddam, CT 06438  
345-8591 or 345-4507  
Cruises on the Connecticut River

Connecticut River Ferries  
Glastonbury/Rocky Hill, Route 160  
Chester/Hadlyme Ferry, Route 148  
April 1 to November 30, fares charged

Connecticut Valley Railroad Co.  
P.O. Box 452  
Essex, CT 06426  
767-0103  
Steam train ride connects with Connecticut River cruises on the River Boat *Becky Thatcher*

Deep River Navigation Company  
P.O. Box 382  
Deep River, CT 06417  
526-4954  
Connecticut River cruises on *Lady Fenwick* (Hartford), *Aunt Polly* (Middletown), or *Seven Seas* (New London)

Mystic Seaport Museum  
Sabino Office  
Mystic, CT 06355  
572-0711  
Mystic River cruises on the *Sabino*

Schooner, Inc.  
60 South Water Street  
New Haven, CT 06519  
865-1737  
Educational cruises on the *J.N. Carter* on rivers and Long Island Sound

River Queen Cruises, Inc.  
193 Thames St.  
Groton, CT 06340  
445-9516  
Thames River rides on *River Queen II*

## Canoe Camping

Hurd, Gillette Castle, and Selden Neck State Parks. Brochure, 566-5599. Reservations: Gillette Castle State Park, 526-2336.

## River History

Connecticut River Museum  
Foot of Main Street  
Essex  
767-8269  
An 1878 dockhouse, models, replica of 1775 *Turtle*, America's first submarine. □





*Hartford's Charter Oak Landing offers riverside concerts ... see page 5. (Photos: Riverfront Recapture, Inc.)*

# Hartford's Riverfront Recapture

by **Eric C. Taubenheim**  
Intern, Trinity College

THIS YEAR MARKS THE 10TH ANNIVERSARY of Riverfront Recapture, Incorporated, a non-profit organization which originally sprang from the desire to restore public access to riverfront recreation in Hartford. Riverfront Recapture has played a huge role in the planning and building of recreational facilities on the Connecticut River and in educating Hartford residents about the Connecticut River's potential.

In 1980, Travelers Insurance hosted an organizational meeting out of which Riverfront Recapture was born. Original sponsors included the City of Hartford, the Downtown Council, the Connecticut River Committee, and the Hartford Architecture Conservancy.

In 1981, the Corporation was officially formed as a riverfront planning and advocacy group. The riverfront park system idea, which is currently under development, was conceived in these early years, and several riverfront projects have since been designed and completed. Among these are the dock at Charter Oak Landing in Hartford and the new riverwalk in East Hartford, between Great River Park and the Bulkeley Bridge. Benches and exercise stations will soon be added to the East Hartford project.

Planning is now under way for a landscaped platform over I-91, reuniting downtown Hartford with the Connecticut River. The platform's primary purpose will be to provide pedestrians access to a newly designed urban recreation area on the bank of the river. The new park will feature grassy terraced steps, perfect for picnics, which will also serve as seating for a new riverfront amphitheater. Spectacles envisioned for the site include rowing regattas and concerts.

The I-91 platform will also provide pedestrian access to Founders Bridge, and thus to the riverwalk in East Hartford. Upon completion of this project, pedestrians will be able to take a "loop" riverfront promenade between Charter Oak Bridge and Founders Bridge. Floating docks will allow for excursion boats and water taxis serving the downtown area. Construction for the project goes to bid in June, with estimated completion in 1995.

Planning is also under way on extending a riverwalk north from Hartford into Windsor. As the path leaves the city center, it will become more of a nature walk, emphasizing the beautiful natural surroundings. The master planning for this project is almost completed, and actual



designing will soon begin.

Riverfront Recapture's current main goal is to change common conceptions of the river as a dangerous and dirty hazard. "Once people are exposed to the river, they begin to see the positive potential," says Joseph Marfuggi, Executive Director of Riverfront Recapture. "We have become more of an activist group."

The organization not only works with four municipalities, namely Hartford, East Hartford, Windsor, and Wethersfield, to design and build riverfront parks but also organizes boating programs and fishing tournaments. In September 1990, Riverfront Recapture sponsored the Eastern Regional BASS Tournament on the Connecticut River, hosting 175 competitors, and breaking records for the number of fish caught. The event was so successful that Riverfront Recapture was asked to host it again in September 1991, once again bringing this prestigious event to the Hartford area.

The organization has also become actively involved in leadership training programs for Hartford's inner-city youth. Planning for an Outward Bound type riverfront leadership training program is currently under way. Also, Hartford youths have been hired to build skiffs, bateaux, and dories for public use on the river. This growing "fleet" of boats is currently used in community boating programs, in which anyone can become involved for a small membership fee. These boating programs may

be operating seven days a week in the near future.

Riverfront Recapture is also sponsoring "discovery cruises" and a curriculum for inner-city schools to educate Hartford's youth about the river. The Betances School, on Charter Oak Avenue, is one of the schools currently involved in this program.

Funding for Riverfront Recapture is provided by the State of Connecticut, Hartford, East Hartford, and private donations. Residents from 62 Connecticut towns have donated. State contributions are allocated to park and project designing, while city and private donations are used as the organization's operating budget.

"Our fund raising efforts have been so successful because the 65 members on our board of directors are a real representation of the community, coming from all walks of life," says Marfuggi. "Water has an appeal which cuts across all socio-economic and cultural barriers. With our ideas, everybody wins." Marfuggi also points out that a riverfront parks and recreation system is beneficial to the economy of greater Hartford, in that it attracts people to the region and creates a climate for future investment through constructive land development.

To make a donation and become a "Friend of the River," or for information on future activities and projects sponsored by Riverfront Recapture, Inc., write to One Hartford Square West, Suite 104, Hartford, CT 06106. Or, call (203) 293-0131. □

*Great River Park in East Hartford will become part of a Hartford-East Hartford riverfront pedestrian loop.*





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# Cities Get Back To Their Rivers

## IN MIDDLETOWN, ACCESS IS ISSUE

by William M. Kuehn, Jr.

IN MIDDLETOWN, THE CONNECTICUT RIVER was once the commercial lifeline of the city, with dense development of docks, wharves, and other riverfront establishments at the foot of its gently sloping streets.

Middletown's riverfront was cut off from its central business district first by the railroad, then more seriously by Route 9, a four-lane, limited access highway. The land remaining between these barriers and the river is limited and access has become a primary urban issue.

Today, Middletown's riverfront is also affected by the city's needs for public water and sewer service. The city's three centuries of growth, combined with vigorous commercial development during the 19th century, led to construction of a combined storm and sanitary sewer system. Over time, this system has resulted in major river pollution at times of peak storm drainage. The sewers are presently being separated at considerable cost.

In addition, the needs of a city population for large amounts of potable water have led to the development of a major wellfield on the Connecticut River aquifer.

As a result, much of the public riverfront land downstream of downtown is occupied by a sewage treatment plant, a water treatment plant, and an expanding well field, none of which are open to the public.

This leaves the city with only three parcels with recreational potential, and even these have constraints. Harborpark, across Route 9 from the town center, has been successfully developed but is facing a major emergency repair problem with its bulkheads. Downriver Park is at

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*William M. Kuehn, Jr. is Director of Municipal Development for the City of Middletown. Howard Plomann is the Executive Director for the Waterbury Development Agency. These articles were excerpted from articles in "Rivers: A Publication of Connecticut's River Management Program."*

the foot of Connecticut Valley Hospital, but it is tiny and offers no opportunity for a boat launch or any type of parking. The 30-acre "Chicken Farm" belonging to the State is perhaps the largest public riverfront parcel, but it has problems with access to the water because the railroad tracks run along the river's edge. Below this parcel, the riverbank becomes extremely steep and the land is not appropriate for recreation.

Despite all the constraints, riverfront projects in Middletown abound, with a dozen or more from Harborpark downstream to Downriver Park. Plans are under way for scenic improvements, boat launching sites, and handicapped access, and town and state agencies are working on a bike path and landscaping along the river.

On the river itself, there is competition. Middletown is in a "no wake zone," but river traffic is very heavy and school, college, and citizen rowing programs are sizeable. The Harbor Improvement Agency monitors all development and management issues on the river and attempts to balance the needs of rowers with those of power boaters.

Through all these projects, Middletown is addressing the needs for improved pedestrian access to the river, small boat launching facilities, river traffic and harbor management, adequate drinking water supply, pollution reduction, and improved recreational opportunities.

The bend in the Connecticut River is a magnificent resource. It was no accident that our Colonial forefathers selected this spot for a community, and it is no accident that the city wants to return the waterfront to the citizens for their enjoyment and use.

## NAUGATUCK PARTNER IN REDEVELOPMENT

by Howard Plomann

TO THE ORIGINAL SETTLERS of the hilly, rock-strewn area of dense forest that would eventually emerge from the later 1600s as Waterbury, the Naugatuck River provided the basis for turning an otherwise inhospitable environment into a thriving industrial stronghold. Harnessed for both power and for cooling during the process of manufacturing brass, the Naugatuck and its several tributaries served as the economic lifeline for the area for close to 300 years.

Today the Naugatuck, which meanders from north to south for over seven miles through the heart of Waterbury, reflects the legacy of the now by-gone days of brass. Traversing a decidedly urban environment, the river is characterized by extensive development along its banks, most of it industrial or commercial in nature. Retaining walls occupy significant portions of the banks, and the river remains largely inaccessible to the public. The river also shows the effects of 200 years of industrial pollution, despite successful efforts in the last 20 years to restore the river's water quality.

Current redevelopment strategies seek ways to re-





*Middletown's river front is popular for school, college, and citizen rowing programs. (Photo: Ken W. Sasso)*

claim the aesthetic and recreational quality of the river.

One such strategy is Heritage Park. Focused on the industrial core along the Naugatuck, Heritage Park will eventually include a museum dedicated to the history and role of brass manufacturing in the development of Waterbury. The museum will be the hub for a series of linear parks up and down the river.

Bicycle and jogging paths and picnic and play areas will be created and linked by boardwalks around areas that are developed. Strategically placed weirs will create

pools to support canoeing, rafting and fishing. Boat launches and pedestrian access will be designed as well.

A second strategy, the Crossroads Centre project, would redevelop an underutilized industrial area into a site for commercial office space, housing, retail space, and a multi-purpose convention center.

While the river has played a major role for 300 years, in the past growth has always been at its expense. Today, the Naugatuck is becoming a partner in redevelopment, not its victim. □



Over 50 organizations — from watershed associations to primarily recreational groups — are seriously involved with issues surrounding the management and preservation, as well as the enjoyment, of Connecticut's rivers. Think about joining one of these groups and adding your support.

# Organizations Hold Our Rivers In High Regard

Compiled by **Sarah Leff**

American Bass Association, Inc.  
886 Trotters Trail  
Wetumpka, AL 36092  
205-567-6035

American Rivers, Inc.  
Sarah Leff, CT Representative  
4 The Green  
Collinsville, CT 06022  
693-4875

Appalachian Mountain Club  
AMC CT Chapter Chairman  
Jeff O'Donnell  
140 Woodbine Road  
Stamford, CT 06903  
322-4007

AMC CT Whitewater Chair  
Steve Solokoski  
156 Firetown Road, Box 121  
Eastford, CT 06242

AMC CT Conservation Chair  
Judy Snyder  
P.O. Box 735  
Somers, CT 06071

Aspetuck Land Trust, Inc.  
P.O. Box 444  
Westport, CT 06880  
226-7996

Audubon Society -- Connecticut  
Sherman Kent, Ex. Director  
118 Oak Street  
Hartford, CT 06106  
527-8737

Audubon Society -- Saugatuck  
Valley Chapter  
Dick Harris  
10 Loren Lane  
Westport, CT 06880

Blackledge River Watershed  
Committee  
Ellen Miller-Wolfe  
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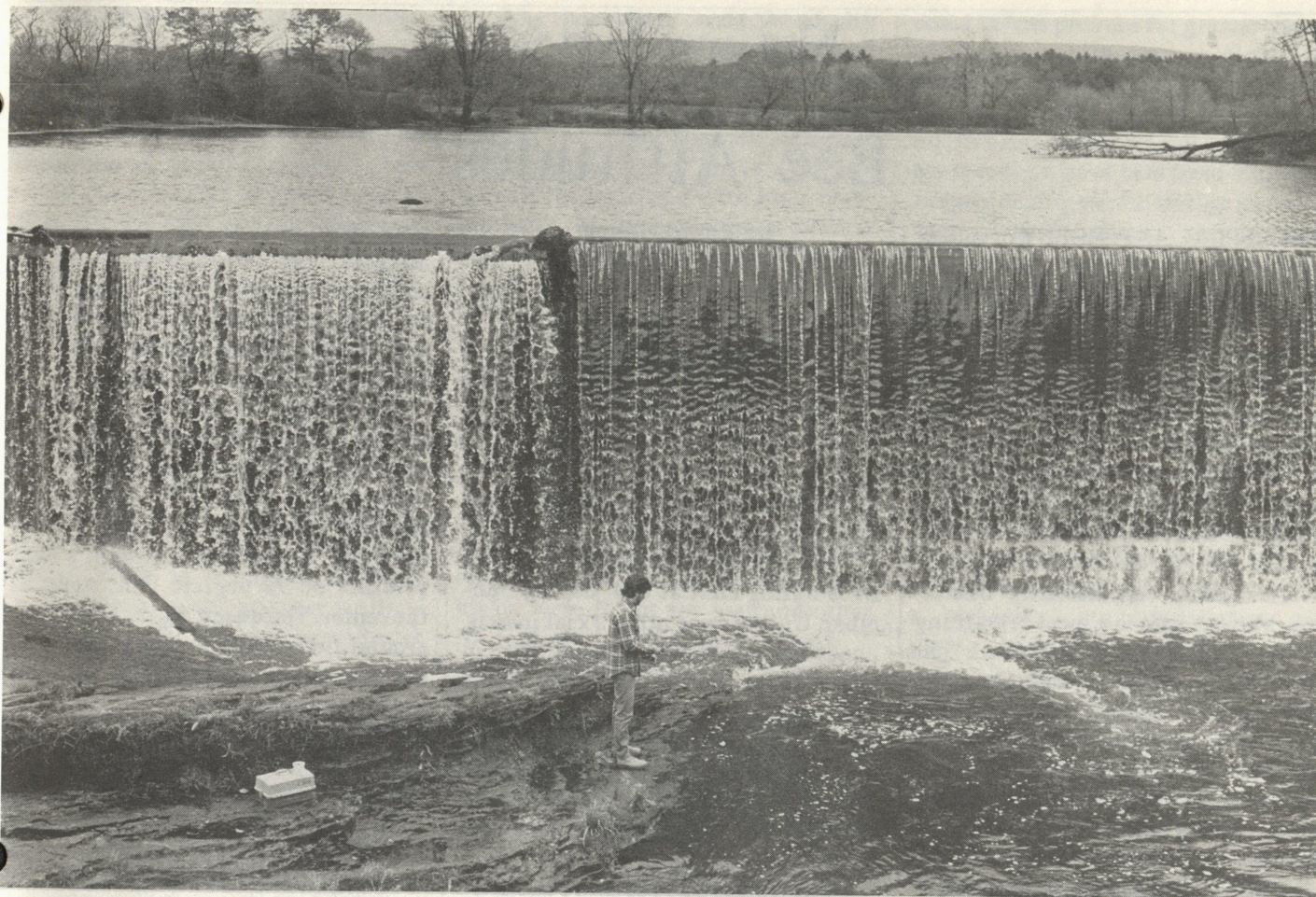
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Land Conservation Coalition for  
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*It's not only fishermen who are concerned about rivers, as over 50 organizations prove. (Photo: Sylviane Doyle)*

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# Nature Notes

## Bee Attitudes

by Penni Sharp



BEEKEEPING, AS A HOBBY or industry, dates back centuries in human history. From the paintings in Egyptian tombs we can deduce that members of this early civilization kept bees in clay tubes or pipes fashioned from mud from the Nile River. Since that time, man has devised numerous structures for housing bees, ranging from the straw bee "skep," to hollowed logs, wicker baskets, and the modern wooden hive with its moveable frames.

As I have very recently discovered, keeping bees is a most rewarding hobby. You might instantly think that the honey produced by these insects is good reward, indeed; however, the honey is, to my way of looking at it, the secondary reward. Learning about bees and their intricate social structure and the predictable order of their lives has been an enriching experience. We have much to learn from these creatures. I imagine that any beekeeper would agree that keeping bees makes one more keenly aware of certain natural phenomena such as weather, the flowering time of many plants, and the cycles of the natural world. In the year that I have been at beekeeping, I have found great satisfaction in studying and tending the bees.

A typical colony of honey bees (*Apis mellifera*) contains in the neighborhood of 60,000 individuals. All bees in a colony are the offspring of the queen. By far the greatest number of bees are the worker bees, all females, which do not, under normal conditions, lay eggs. During spring and summer, bee colonies contain drone bees. These are males which are slightly larger than the workers and whose only function in the hive is to mate with the queen on her nuptial flight. Prior to winter, particularly if honey stores are low, workers may drive the drones out of the hive, leaving them to starve, or may sting them to death. Although, from our perspective, this may seem cruel, it is done to ensure survival of

the hive through winter when stores of honey may run low.

Worker bees spend their entire lives toiling first at one job, then another. Unlike some other social insects, honey bee workers do not specialize in a particular job. Rather, they move from one to another with advancing age. During a worker bee's short life (approximately five weeks in spring and early summer), she will probably work on every aspect of hive maintenance.

The first 10 days or so are taken up with domestic chores, primarily tending and feeding the brood. The larvae are fed honey and "brood feed," which is liquid nourishment produced by the salivary glands of a young bee.

As the bee ages, the glands that manufacture brood feed dry up, and the wax glands become fully developed. During this phase of the worker's life, she builds and repairs comb for the storage of honey and pollen and the laying of eggs.

Towards the end of her life, the worker bee's wax glands stop functioning and she becomes a "field bee," foraging for nectar and pollen. Honey bees will fly fairly long distances on their gathering missions — as much as three miles from the hive. The gathering is a highly organized ritual. Some of the bees fly out to canvas an area for good sources of pollen and nectar. Then the bees will inform their co-workers through an intricate dancing pattern as to the distance and direction of the sources of food. If a source is particularly rich in nectar and pollen, they dance with greater energy and fervor

than they do if the source is merely adequate. The chores of gathering are dangerous ones for bees, which leads one to conclude that is not by accident that foraging is the last duty that the worker honey bee undertakes.

A worker bee that emerges in late summer and early fall has a longer life span and will live for several months through the winter. During winter, the bees form a tight cluster around the queen in order to maintain a temperature of 93 degrees Fahrenheit at the center. The queen begins to lay eggs around the middle to end of January, and the colony begins to build up again as spring approaches.

A colony that becomes too crowded may swarm. When room in the hive becomes tight, workers will build a few over-sized cells. The larva deposited in a large cell is fed a special diet and is destined to become a queen. When a new queen emerges from the cell, the old queen leaves, usually taking about half of the colony with her.

The swarm typically settles on a nearby branch. Prior to swarming, the bees fill up on honey and become lethargic. A swarm of bees is, therefore, quite docile, and some beekeepers will gather a swarm with bare hands. If not collected, a swarm will eventually find a new home. A few scout bees leave the swarm in search of a suitable site. They return to the waiting swarm and by a dance performance inform the bees where to go. The cluster dissolves, and the swarm makes a "beeline" to its new quarters.

Meanwhile, the original colony begins to build up in numbers with the new queen. A queen bee is capable of laying as many as 2,000 eggs a day! The honey bee is a fascinating subject to study. The order within the hive, the pattern of egg-laying, and the perfect hexagonal wax comb are just some of the wonders of the bee world.

It is probably fair to state that the honeybee is thought of primarily as a



producer of honey. Yet honey production may not be the most valuable service that this insect renders. Honeybees play a crucial role in the pollination of a great number of fruits and vegetables. A world without bees would be a world without apples, pears, oranges, peas, beans, tomatoes — the list goes on.

Among the food plants, the grain crops are wind-pollinated — that is they have light, dry pollen that is carried by wind. Other food plants, including the legumes, fruits, and many vegetables, have moist, sticky pollen and rely upon external agents for the transfer of pollen from anther to stigma. This process is known as cross pollination, and it allows plants to evolve and to adapt to changing environments. Insects are the primary pollinators, and among them, the honeybee is extremely important.

The honeybee's body is ideally adapted to carrying pollen. Body and legs are covered with stiff, branched hairs which catch and hold pollen grains. The hind legs are equipped with "pollen baskets" that are concave areas of the leg, edged with long, curving hairs. In these baskets, a worker bee deposits pollen and carries it back to the hive where it serves as a major food source for the young brood. As bees go about gathering pollen, their bodies become covered with the sticky pollen grains. Field bees then inadvertently transfer pollen from one flower to another.

For many plants, cross pollination is essential. Fruit and nut trees and some vegetable plants are unable to set fruit or would have extremely poor yields were it not for bees and other pollinators. Through experiments, it has been demonstrated that plants ex-

posed to bees produce far greater yields than those which are not visited by bees. Apples, blueberries, raspberries, and pears all need bees for good fruit set. In Connecticut, many fruit growers rent colonies of bees from local beekeepers during the flowering period of their particular crop.

There are long lists of plants which require cross-pollination by insects, many of which are important food plants. These include squashes, pumpkins, melons, eggplant, tomato, parsley and many herbs and spices.

Many of the wild plants that beautify our landscape also depend on the honeybee for cross pollination. At the same time, bees get the pollen and nectar essential to their survival from these flowering plants. Since I became a beekeeper, my appreciation for plants like dandelions — considered by some to be noxious weeds — has grown. I have also become very curious about the early season sources of pollen. On the warm days of late February and early March I watched many bees returning to the hive heavy with pollen of different colors. Other than skunk cabbage, I could think of nothing in bloom, yet the bees had discovered some source of which I was unaware.

It is of interest to note that the honeybee is not a native insect. It was transported to the United States by the early colonists, and the honey produced by those bees along with maple sugar was probably the only sweetener available. The most common honeybee is the Italian strain, known for its gentle disposition and hardiness. It was introduced to the United States during the mid-19th century.

There are many books and publications on bees and beekeeping. Local beekeeping associations welcome new members. The Connecticut Agricultural Experiment Station keeps a registry of beekeepers and informs them about bee diseases, new legislation affecting beekeepers, and other pertinent information. □

Recommended reading includes *The Queen and I* by Edward A. Weiss and *The Beekeeper's Handbook* by Diane Sammataro and Alphonse Avitabile.



*A honeybee's hairy body and legs are ideal for carrying pollen. (Photo: Leonard Lee Rue III)*



# The Natural Historian

## Crickets, Beetles On Summer's 'Top 40'

by Kristin Johnson,  
Writing Intern  
UConn Department of English and  
Connecticut State  
Museum of Natural History

WARM SUMMER NIGHTS are perfect for romance, especially if you are an insect. Beginning in midsummer, darkness will bring a nightly orchestra of hopeful males serenading females.

"Insects, like other animals, sing for many reasons, but usually within the context of courtship and mating," said Charles Henry, a professor of Ecology and Evolutionary Biology at The University of Connecticut and discoverer of the mating songs of the green lacewing.

In most insects, males do the courting. Mating songs tell females the location, species, reproductive status, and fitness of available males. Other songs warn off rival males. Females respond only if they are interested in mating.

Producing their songs is expensive for many insects: the only behavior which takes more energy is flying. Most insects make music by rubbing one body part against another.

Insects do not really carry a tune. Their songs are patterns of sound at various volumes that differ in intensity and rhythm. The sound patterns are under genetic control, but they are affected by location, weather, and the sounds of neighboring insects. Insect singing is always temperature-related. Warmer temperatures cause a change in the rhythm and an increase in the pitch, or frequency, of the song. Because atmospheric conditions affect insect singing, a dedicated nature observer with keen hearing can even determine the temperature on a given night by keeping track of the number of chirps the snowy tree cricket or the katydid produces in one minute.

It is difficult for casual listeners to identify the sounds of different insects, especially on warm nights when there is a full symphony orchestra on the lawn or in the wood. Insects, however, easily distinguish between signals and can identify those produced by their own kind.

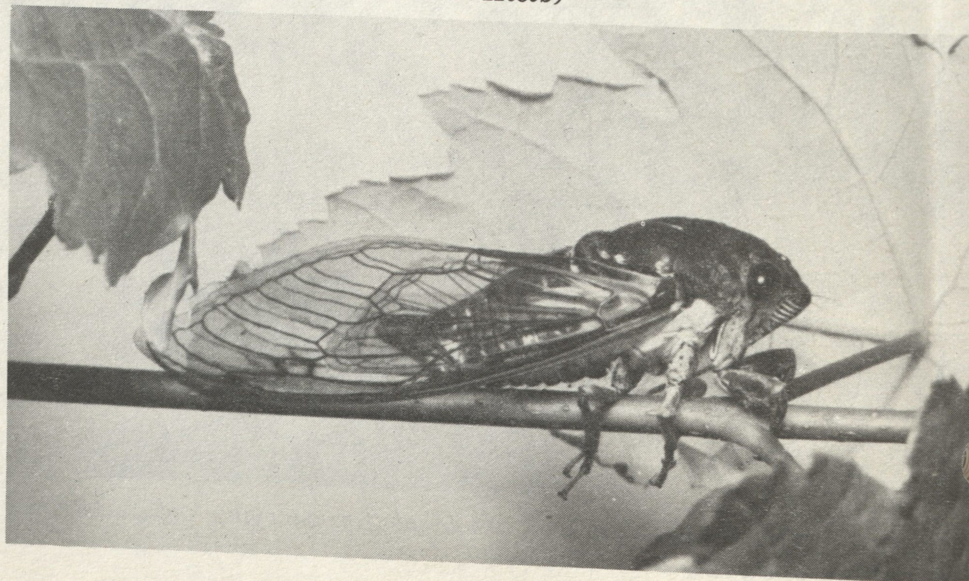
The ability of male insects to produce lively sounds is critical to individual reproduction. The objective of mating is to produce strong offspring that will propagate the individual's genes by surviving in a hostile world. Since the female bears the higher investment in producing the next generation, she rejects many suitors in favor of one that she senses has genetic fitness. A relatively few males mate many times, while less attractive males never mate at all.

"A male can acquire a partner in two ways: by having the most attrac-

tive features or by being the only male left after eliminating his competitors," said Henry. "Males that have a more elaborate, loud, energetic, or seductive song than other males can attract more females because the best song indicates that this male is the most fit," Henry explained. While males invest tremendous energy in singing lively songs, females usually respond briefly or with no song. Quietly, the female chooses a male and moves to him.

The most common method of sound production is stridulation, frictional sound accomplished by the rubbing of one body part against another. Most of the insects in Connecticut make sounds this way. These fiddlers, such as crickets, grasshoppers, and katydids, make music with a file (a series of teeth or ridges) and a scraper (usually a single ridge). Locusts and other short-horned grasshoppers chirp

*Adult cicada. (Photo by Alexander B. Klots)*





by rubbing pegs on their hind legs against a vein on the hind wing, usually moving both legs at once.

Tymbal muscle contractions also make sound. One sound is produced as the tiny drum-like membrane on the surface of an insect's body pulsates, while another is made as it relaxes. Cicadas do this. The muscle contracts so fast that to humans the sounds seem continuous.

Insect sounds can also be produced with a body part and another object. Deathwatch beetles strike their heads against the floor of their wooden burrows; they got their name because during a death watch, families would be quiet enough to hear the beetles tapping in walls or furniture. Termites rap their heads or abdomens on wood with a clacking sound that has a high pitched but not very powerful sound.

Many insects produce sounds that people find hard to hear, in most cases because the insects are so small. Green lacewings have what Henry calls a "silent song." They are small and delicate and difficult to see because they blend in with vegetation. Unlike other species, both female and male sing elaborately during courtship, vibrating their abdomens to produce sounds that travel through leaves and grass. While other lacewings can detect these low-intensity vibrations, humans, such as Henry, must use a high technology detector to hear the love songs of the male and female lacewing.

Few people would notice the sounds made by wallpaper book lice, which live behind loose wallpaper and use it as a sounding board for their abdominal tapping. The lice are drawn to dampness and feed on the wallpaper paste.

Insects produce another type of sound, called "music of flight." These songs are created by the vibrations of the wings, usually producing a humming sound. This could be a warning to scare away enemies, a call for insects to gather, or an appeal to attract the opposite sex.

Insects also use sounds for protection. One of the drawbacks of insect communication is that if members of the same species can receive the signals, enemies probably can as well. When

threatened, sand crickets produce rasping sounds to frighten away potential predators. Moths make clicking noises to jam bat radar signals. Other insects confine their songs to substrates to avoid broadcasting their presence. Vibrations produced by some part of the insects' bodies are transferred through the legs to the surface of a leaf or stem of grass, where other insects hear them through vibration sensors on their legs.

After insects hatch from the egg, they pass through several molting stages before becoming fully mature. Wings appear after the last molt, in about midsummer. Then the insect has reached adulthood and begins to produce songs. Insects can sing either during day or night, depending on when the species is most active. Some have diurnal rhythms, meaning they have a pattern of singing that they repeat every day. Most grasshoppers chirp during the day, whereas tree crickets, chirping crickets, and katydids sing at night.

In order for insect songs to be effective, they must be "heard" by other insects — which must be capable of receiving incoming sound signals. Human ears are most sensitive to the lower notes of insect sounds, but some insects can detect ultrasonic sounds more than two octaves above the highest note audible to humans.

Some insects may hear through their legs. Scientists consider an insect as "hearing" if it behaves as if it has located a moving object or a sound source not in contact with it. While insects do not have eardrums on each side of the head, all insects have hairs on their bodies that react to vibrations in the air for touch and sound reception. The sensory hairs can be widely distributed on the mouth, legs, wing bases, antennae, abdomen and tracheal system. Some species of caterpillars have these hairs scattered all over their bodies.

Some insects actually do have eardrums, called tympanic membranes, which appear in pairs. Tympanic organs are thin, flat membranes which vibrate when struck by sound waves. Long-horned and meadow grasshoppers, katydids, and crickets have these on the tibia of each foreleg,

so they actually hear through their legs. Grasshoppers have them on each side of a segment of their abdomens. Cicadas have them on the lower surface of the base of their abdomens. Moths' tympana are on each side of either the rear thorax or the front part of their abdomens. The organs are well developed in all these insects.

Social insects that live in colonies have intricate communication systems. They use sounds to talk to one another. A trapped worker ant makes a squeaking noise to signal fellow ants to rush to the rescue. Some wasp larvae make scraping noises to signal that they are hungry.

Insect communication systems also include behavior that does not use sounds, but sends messages to their own or another species. Many insects use chemicals to attract mates or to communicate alarm or other information. Honeybees return to the hive from a food source and do a dance to tell other bees where the food is. (See "Nature Notes" on page 14.) Sound is thought to play an important role in that dance.

In Portugal, China, and Japan some people reap such pleasure from insect melodies that they keep crickets and grasshoppers in elaborate cages in their homes. Insect songs are assurance that summer has arrived in Connecticut and that life is being lived to the fullest in the insect world.

To learn more about insects, come to "Insects: Live and Beautiful," at The Connecticut State Museum of Natural History at UConn on Saturday and Sunday, July 13 and 14; for information, call 486-4460. □

*This article was contributed by The Connecticut State Museum of Natural History at The University of Connecticut in Storrs, which exhibits mounted birds of Connecticut, the largest mounted white shark on display in the eastern United States, "Videoplace" interactive video, and Indian artifacts, and offers programs for teachers, children, and adults. For information, contact the Museum, UConn, Box U-23, Storrs, CT 06269-3023; 486-4460. □*





Win and Pam Carter afield. (Photo: Margot Callahan)

## It's A Book!

### Carter Publishes Let's Take A Walk

by Margot Callahan

THE *NEW YORKER* OFTEN announces the publication of books by its contributors in a very last paragraph, usually with a modest "nearly all the contents first appeared in this magazine." For *Connecticut Environment* such an announcement rates a headline and is, in fact, a first.

Win Carter, without any doubt, is *Connecticut Environment's* "senior correspondent." He and then-editor Doug Starr met at one of the National Audubon Society ecology workshops Carter has been conducting for over 20

years, and Carter's first article appeared in the *Citizens' Bulletin* in February 1976.

In the 15 years since, only a rare issue has lacked "Trailside Botanizer," when we occasionally pre-empted it with full-issue special reports.

Pam Carter has been doing the botanical illustrations for the same decade and a half, with a break now and then provided by DEP's artists.

All of which, at this point, means the Carters have produced somewhere around 165 columns and features on

Connecticut's wild plants.

We've repeatedly said, and heard, that it would be nice to have a collection of these articles ... and now, finally, it's a fact. Carter has just published *Let's Take A Walk*. Pam Carter has done 77 completely new line drawings for the book.

An attractive, and substantial, paperback, *Let's Take A Walk* takes you on 15 different botanical field trips, from seashore to bog, from roadside to forest. Four of the walks, Carter notes, are set at the Harry C. Barnes Memorial Nature Center in Bristol. All of them, over a number of years, originally appeared here.

The Carters and I took a real live walk not long ago. Our goal was a photograph, but we did a little "botanizing" along the way, looking at spice bush and skunk cabbage, at trout lilies and blueberry bushes at the Barnes center.

I drove off afterward feeling as if Win and Pam Carter and I had just repeated something we'd done often before, though my botanizing has pretty much been limited to a decade plus of "Trailside Botanizer."

The press release that arrived announcing the book's publication, put a finger on it: "Come along on a personal tour to many different habitats through the seasons with an experienced Audubon field botanist. One of the special features of this book is the feeling that you are there experiencing each new environment with its many discoveries."

Relative newcomers to *Connecticut Environment* and "Trailside Botanizer," can now trek some of the botanical trails they've missed. For longtime readers, it's high time to go back and enjoy them again.

To, as the book's subtitle states it, "Discover the habitats, adaptations, uses and folklore of some common wild plants of the Eastern United States," order *Let's Take A Walk*. It's \$14.95 plus \$2.00 shipping and, for Connecticut residents, eight percent sales tax (\$1.36). Make checks payable to: Gale W. Carter. Include your name, address, and telephone number. Send orders to: G.W. Carter, 259 Glendale Drive, Bristol, CT 06010. □



# Trailside Botanizer

## Caraway

by Gale W. Carter

Illustration by  
Pamela Carter

A NUMBER OF THE MEMBERS of the parsley family (*Umbelliferae*) look alike. It is only by paying close attention to small details that identification is certain. This is important in this family because of the number of species that are poisonous. Some of the details include: presence or absence of hairs; appearance of the fruit (often called seeds); and, if present, the nature of the bracts found below the flower.

Caraway is a hairless, furrowed-stemmed biennial or perennial that grows to a height of one and one-half to two feet. It has grayish-green, finely cut leaves that are similar to those of poison hemlock, Queen Anne's lace, and fool's parsley.

The flowers are in flat-topped clusters (umbels) that may have one to three narrow bracts below them, but these are often missing. Each umbel is one to two and one-half inches wide and resembles Queen Anne's lace but is

(*Carum carvi*)



© copyright 1991, Gale W. Carter.

a duller white and is not as spectacular. Blossoming time is from May to July.

Its fruit is one of the keys to its proper identification. Each fruit is slightly curved, marked with five ridges, and is aromatic. Both the leaves and the fruit contain the same oil that produces the fragrance.

Caraway is found growing in waste places.

The origin of the name is not certain, but some believe that the common name and species name *carvi* come from the ancient Arab word for the fruit (seeds), *Karawaya*. Others believe that the name *carvi* comes from Caria in Asia minor where this species was first identified.

Caraway is well known for its use as a flavoring in cookies, cakes, and confectionaries, and an oil is extracted from the fruit and used as an ingredient in after-dinner liqueurs.

As a medicine, the oil from the fruit, with sugar added, was used for the relief of labor pains, and the fruit was used as a poultice for bruises. The fruit was also once thought to prevent baldness. □

## The Night Sky

### Eclipse

by Francine Jackson

ALTHOUGH NOT SCHEDULED to occur until July 11th, there is much hype around about this summer's total solar eclipse. There are two reasons for this: this will be one of the longest eclipses in modern times, and it will be the last to be seen in North America until 2017.

Total solar eclipses are a beautiful sight. The moon, situated between the earth and the sun, passes directly in front of the sun, blocking off its light for up to about seven minutes. During that time, the sun's beautiful corona,

usually lost in the sun's glare, is visible we are too far north to experience this for all to gaze at in awe. Because the sun's major light is gone, a darkness descends on the Earth, allowing the viewer to see brighter stars and planets situated close to the sun at that time.

Also, here on Earth, insects and animals, witnessing the darkening landscape, often begin their night rituals. Crickets begin their mating calls; some animals start bedding down for the evening — chickens, especially go home to roost. Imagine their surprise several minutes later!

This year, totality is visible from Hawaii's Big Island, as well as Baja and Mainland Mexico, and as far south as Brazil. Unfortunately for us in the Northeast, the day will be uneventful;

natural beauty. But, for those who are able to travel, what a wonderful way to spend a summer holiday.

In the sky this month, face west after sunset for a most beautiful grouping of the planets Venus, Jupiter and Mars. The best nights to observe this are the 15th, with the young crescent moon joining the triad, and the 18th, when the three planets will be the most tightly grouped in the sky, within just two degrees. With binoculars, also notice the star cluster the Beehive framing parts of the celestial arrangement.

And finally, don't forget to wish everyone a cheerful summer solstice on Friday, the 21st. Official summer starting time: 5:20 p.m., Eastern Daylight Time. □



## A Look at Lakes:

# Acidity Measured via Microfossils

by Stacey Kingsbury  
Environmental Analyst Trainee  
DEP Water Management Bureau

ACID RAIN HAS BEEN BLAMED FOR corroding the Statue of Liberty, damaging Vermont's maple trees, and acidifying the Adirondack lakes. But, according to a recent study, Connecticut's lakes may have so far escaped the negative effects of acid precipitation.

Dr. Peter Siver, freshwater ecologist and Professor of Botany at Connecticut College, recently completed research — funded by the DEP as part of a statewide lake water quality assessment grant from the Environmental Protection Agency under Section 314 of the federal Clean Water Act — that reconstructed the historical conditions of five Connecticut lakes thought to be sensitive to acidification. Based on his research, Siver concluded that these lakes have not become more acidic since the onset of widespread acid precipitation in the northeast.

For this study, Siver used a technique called paleolimnology. Paleolimnology involves the identification of the fossilized remains of algae deposited in each layer of the lake bottom. By correlating this information with the conditions that cause different species to flourish today, scientists can construct a profile of the lake's acidity.

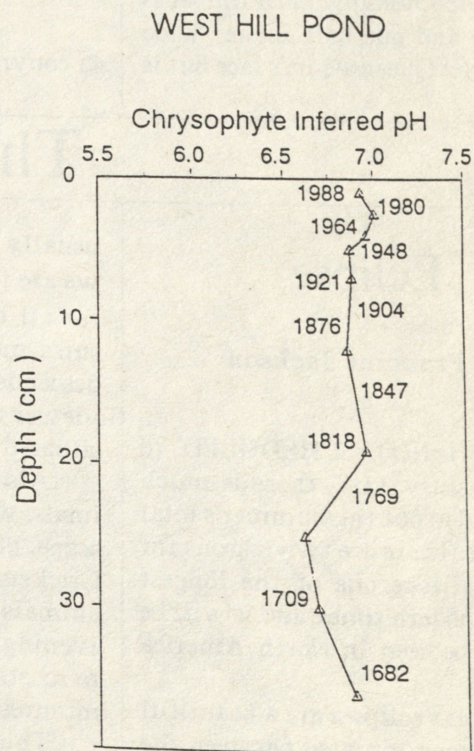
For example, Siver's research has found that the species *Mallomonas duerrschmidtiae* lives only in acidic waters with a pH range of 5 to 6. Thus, if fossilized remains of *Mallomonas duerrschmidtiae* are present in sediments, it can be concluded that the pH of the lake when the sediments were deposited was between 5 and 6.

Paleolimnology can be used to determine whether a given lake is naturally acidic or has become acidic in the recent past. It is also the EPA's primary tool for assessing acidification trends in regions throughout the country.

For his study of acidification in Connecticut lakes, Siver took cores of sediments from each lake bottom. The cores were sectioned into thin intervals; part of each section was used for microfossil identification and another part was sent to a laboratory to be dated. The species of *Chrysophytes* (the particular algae Siver uses for paleolimnological research) were identified and quantified. By comparing this information to a model, a history of each lake's pH conditions was constructed.

Siver studied six lakes, five of which provided significant results: Long Pond in Ledyard and North Stonington; Lake Quassapaug in Middlebury; Lake Alexander in Danielson; West Hill Pond in New Hartford; and Riga Lake in Salisbury. Fossils from the sixth lake, Killingly Pond, were not well preserved and could not be used for

Figure 1.



The inferred pH of West Hill Pond based on microfossil remains of scaled Chrysophytes. The core represents approximately 310 years.



this study. The DEP selected these six lakes for the study because previous monitoring studies suggested that they were sensitive to impacts from acid precipitation.

Sediments from West Hill Pond were dated back the farthest — to 1682 — and provided the most complete reconstruction of pH conditions. For the past 300 years, the species of *Chrysophytes* have remained relatively stable in the lake, although changes in their relative abundance have occurred. Changes in species abundance can be related to changes in the watershed. For example, a decline in the abundance of *M. duerrschmidtiae* after 1741 correlates with the onset of farming in the area. Overall, the inferred pH of West Hill Pond has remained remarkably constant, and the pH has neither increased or declined significantly (Figure 1).

The lake water pH for Long Pond was reconstructed for approximately the past 160 years (Figure 2). Between the 1820s and circa 1875 the inferred pH was relatively stable at about 6.2; between 1875 and the early 1900s the mean pH increased to over 6.5. Despite a slight drop in pH to 6.3 during the 1940s, the mean inferred pH has remained relatively stable since about 1950 at between 6.3 and 6.4. Recent epilimnetic pH measurements (the epilimnion is the uppermost layer of water in lakes) ranging between 6.2 and 6.9 are in close agreement with the inferred values. Therefore, the historical inferred pH of Long Pond during the last approximately 160 years has ranged from pH 6.2 to 6.5, with the higher values occurring in the more recent sediments.

As with Long Pond and West Hill Pond, no significant decrease in lake water pH since the early 1800 or 1900s was documented for the lakes in the study.

In fact, four of the five lakes showed slight increases in lakewater pH in the recent past. In the fifth lake, Riga Lake, the inferred pH has remained relatively stable since 1935.

Siver's conclusions corroborate a 1983 Connecticut General Assembly Acid Rain Task Force report which also concluded that acid precipitation did not appear to be impairing Connecticut's lakes.

These results are not meant to imply that acid deposition does not pose a problem in southern New England. Precipitation falling in this area has the second lowest regional pH in the country. An on-going U.S. Geological Survey and DEP cooperative atmospheric deposition monitoring program has measured precipitation in Connecticut since 1981. The data show that the mean weighted pH of precipitation is around 4.3, significantly more acidic than "normal" precipitation whose pH is about 5.0.

Connecticut lakes may be buffered in part from acidification by activities in the watershed (such as home building and other development) that increase the amount of nutrient loading to the lakes. Lakes are also buffered naturally by acid neutralizing substances, such as lime in rock and mineral soils of lake and river drainage systems.

Because the natural acid-neutralizing capacity of lakes can be depleted before changes in pH occur, lakes are

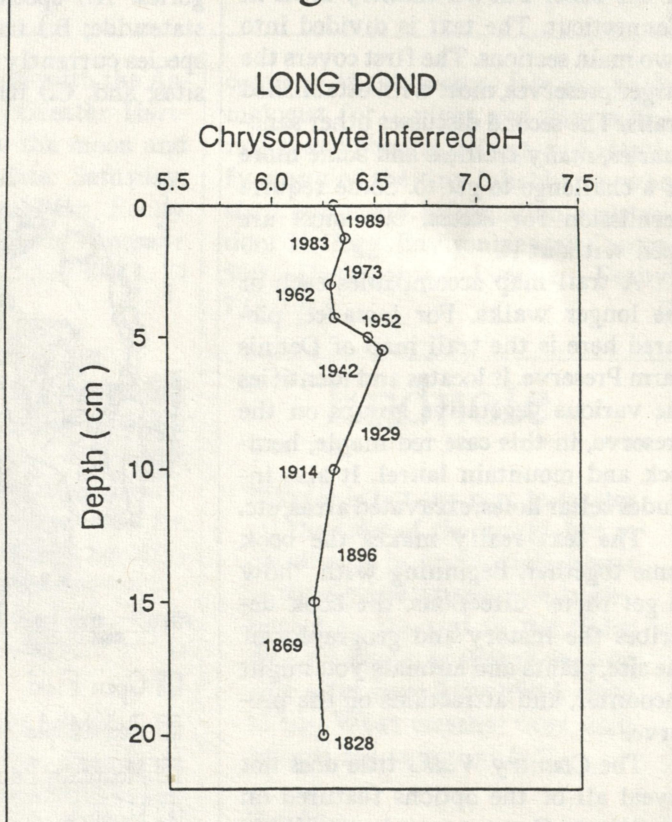
often categorized according to their alkalinity, the measurement of the lake's ability to resist acidification. An EPA eastern lakes survey that included 24 relatively small lakes in Connecticut found that two lakes had low alkalinity, Riga Lake and Killingly Pond.

The DEP lakes management program also categorizes lakes according to their acid-neutralizing capacity. Lakes are classified as "acid impaired," "acid threatened," or "acid not threatened." Of the 106 publicly owned, recreational lakes classified to date, no lakes appear on the acid impaired list, eight lakes on the acid threatened list, and 98 lakes on the acid not threatened list.

At least two of the lakes on the acid threatened list have considerable organic deposits that contribute organic acids to the lake water, which in turn lowers the lake's alkalinity. For example, Pickerel Lake in Colchester and East Haddam was a pine swamp before being impounded. As would be expected, the upper sediments of Pickerel Lake consist of a very organic peat-like material that is also highly acidic. Lakes such as this naturally have high acidity and low alkalinity.

For further information on DEP's lakes program, contact Charles Fredette or Charles Lee, DEP Water Management Bureau, 566-2588. □

Figure 2.



The inferred pH of Long Pond based on microfossil remains of scaled Chrysophytes. The core represents approximately 160 years.



# Map of the Month

## Hikes and Herps

by **Alan Levere**  
Senior Environmental Analyst

NOT TOO LONG AGO I was driving my three year old niece to her baby sitter's house. I was in a rush. From her position strapped into the front seat, her field of vision was pretty much out the window and up to the sky. She began to talk about how blue the sky was and how nicely the clouds stood out against it. The sky was a beautiful blue, and I never saw it.

Times like that make me glad there are books like this month's that can help us take a closer look at the environment around us.

*COUNTRY WALKS in Connecticut* — *A Guide to the Nature Conservancy Preserves* can help you explore some of the lesser known country areas in Connecticut. The text is divided into two main sections. The first covers the larger preserves, most with established trails. The second discusses other sanctuaries, many trailless and some more of a challenge to get to. Some require permission for access, but most are open without it.

A trail map accompanies each of the longer walks. For instance, pictured here is the trail map of Dennis Farm Preserve. It locates and identifies the various vegetative groups on the preserve, in this case red maple, hemlock and mountain laurel. It also includes cellar holes, excavated areas, etc.

The text really makes the book come together. Beginning with "how to get there" directions, the book describes the history and geography of the site, plants and animals you might encounter, and attractions of the preserve.

The *Country Walks* title does not reveal all of the options featured on The Nature Conservancy lands. While most all of the preserves offer walking, some also offer canoeing, ski touring, and other outdoor uses.

In all, this guide offers you a wide variety of options for enjoyment — bogs, mountain summits, ravines, marshlands, glacial deposits, rare flora, beavers, eagles, ospreys — a collection of things that are natural, accessible, and right here in our own state. 214 pages, over two dozen photos, \$8.95.

*CHECKLIST of the Amphibians and Reptiles of Connecticut* — with *Notes on Uncommon Species*. How many different species of amphibians and reptiles are there in Connecticut? Can you recognize them? We now have a book that can help.

This new 24-page DEP bulletin features color photos of each of the 45 species which call Connecticut home. It's conveniently divided into five species lists: frogs, snakes, salamanders, turtles and lizards. Popular and scientific names are given for each.

A two-page checklist assigns each of the 45 species to one of three categories: A.) species commonly found statewide; B.) irregularly distributed species currently found at 25 or more sites; and, C.) irregularly distributed



*Five-lined skink* (Sue Carsten)

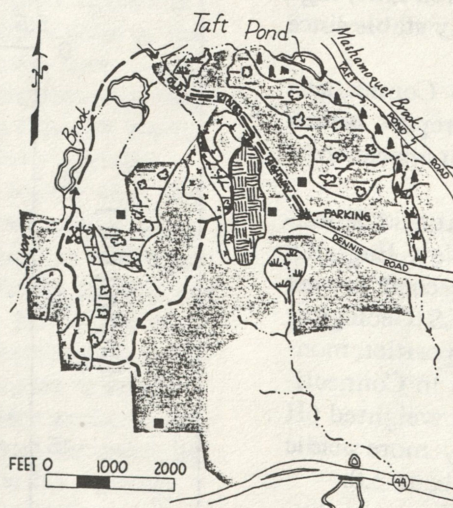
species currently found at fewer than 25 sites.

Nineteen species, or 42 percent of the total, are regularly distributed around our state. This includes seven frogs, five salamanders, and five snakes. In Category B there are 14 species, half of which are snakes. Because of their uncommon nature, each of the 12 species that make up Category C is covered in a brief discussion. Also included is a list of species that have previously been incorrectly reported as indigenous to Connecticut.

If you have wanted to identify that frog or snake in your garden or the turtles sunning in a pond or stream, this book will help. The color photographs are excellent, making the book a must for wildlife enthusiasts, biologists, ecologists, and hikers. 24 pages, 50 color photos, \$6.00.

WHEN YOU ARE DRIVING you probably should have your eyes on the road. But for the times when you have planned to get out and enjoy the blue sky and much of what's under it, *Country Walks* can lead you to a wide variety of destinations, and the *Amphibians and Reptiles of Connecticut* can offer a whole fascinating new world of fascination.

To order, please include \$2.00 for shipping and handling per order and eight percent Connecticut sales tax. Our address is: DEP-NRC, Map Sales, Room 555, 165 Capitol Avenue, Hartford, CT 06106.



- |                   |                     |
|-------------------|---------------------|
| □ Open Field      | ✕ Sand & Gravel Pit |
| ▣ Red Maple       | ■ Cellar Hole       |
| ▤ Mountain Laurel |                     |
| ▥ Hemlock         |                     |
| □ Mixed Hardwood  |                     |

*Map of Dennis Farm Preserve.*



# The Bulletin Board

**ONSITE WATER TREATMENT PROCEEDINGS** FROM the November 1990 "Onsite Sewage Treatment and Disposal" conference are available. Extended abstracts from 22 presentations on siting, design, operation, and maintenance, innovative technology, non-traditional systems. Copies are \$10 each, prepaid. 78 pages. Send requests and make checks payable to SSSSNE, P.O. Box 258, Storrs, CT 06268. □

## WILDFLOWER FESTIVAL

**June 9:** Sixth Annual Wildflower Festival, Sunday, 1 to 5 p.m., Jorgensen Auditorium, 2132 Hillside Road, Storrs. See more than 150 living, blooming wildflowers. Learn about threatened species. Buy wildflower plants. Kids' activities. Slide lectures. Arrangements of native plants by the Judges Council of The Federated Garden Clubs of Connecticut. Exhibit of native grasses by the Connecticut Arboretum. Presented by the Connecticut State Museum of Natural History at the University of Connecticut. Admission \$4 for adult non-members; free for Museum members and children under 18. Handicapped accessible. Information: 486-4460. □

## ENVIRONMENTAL POLICIES SUMMER SCHOOL

**June 12-14:** Two-and-one-half day Summer School at Connecticut College in New London, presented by the Environmental Policies Council of the Connecticut Business and Industry Association. Learn the latest on state and federal regulations and issues from authorities from state and federal government, industry, lawyers, and consultants.

\* Air \* Water \* Hazardous waste \* Recycling \* Superfund \* Permitting \* Stormwater \* Site remediation \* Spill reporting \* Underground storage tanks \* SARA Title III. Contact Cindy Harris at 547-1661 for information, registration. □

## STARS AT DINOSAUR PARK

**June 14:** "Skywatch," Slide Show and

## LAND'S END BACK

*LAND'S END*, THE QUARTERLY NEWSLETTER OF CONNECTICUT'S coastal management program is publishing again. As it did from 1976 to 1988, *Land's End* tries to keep its readers up to date on news from the, now somewhat reorganized Coastal Resources Management Division — new programs, projects, upcoming events, and general information on coastal management issues in Connecticut. It's free. To get on the mailing list, send the coupon below to: Laurie Reynolds Rardin, Editor, *Land's End*, Coastal Resources Management Division, DEP, 18-20 Trinity Street, Hartford, CT 06106.

Please put me on the *Land's End* mailing list:

(Name) \_\_\_\_\_

(Address) \_\_\_\_\_

(City, State and Zip) \_\_\_\_\_

Affiliation (Circle one):

*Individual, Local Gov't., State Gov't., Fed. Gov't., Marine Industry, Marine Education, Environmental Group, Educator, Press.*

Telescope Demonstration with the Astronomical Society of Greater Hartford. 8-9:30 p.m. View the moon and the night sky. Rain date: Saturday, June 15. Dinosaur State Park, Rocky Hill. Sponsored by Friends of Dinosaur Park Assn. Information: 529-8423. □

## ROCK AT DINOSAUR

**July 16-19:** "Discovering Rocks and Minerals": four-day summer program for children who have completed grades 4 or 5; 9:30-11:30 a.m. each day. Limited enrollment. Call or stop by park office Tuesday through Sunday, 9 a.m. to 4:30 p.m., for registration information. Dinosaur State Park, West Street, Rocky Hill; 529-8423. □

## INSECTS AT KELLOGG

**June 19 and 22:** "The Insects of Spring." Lab/lecture, June 19, 7:30 to 9 p.m.; field trip, June 22, 9 a.m. to noon. Meet the major groups of insects with emphasis on identification, adaptations, and natural history of species

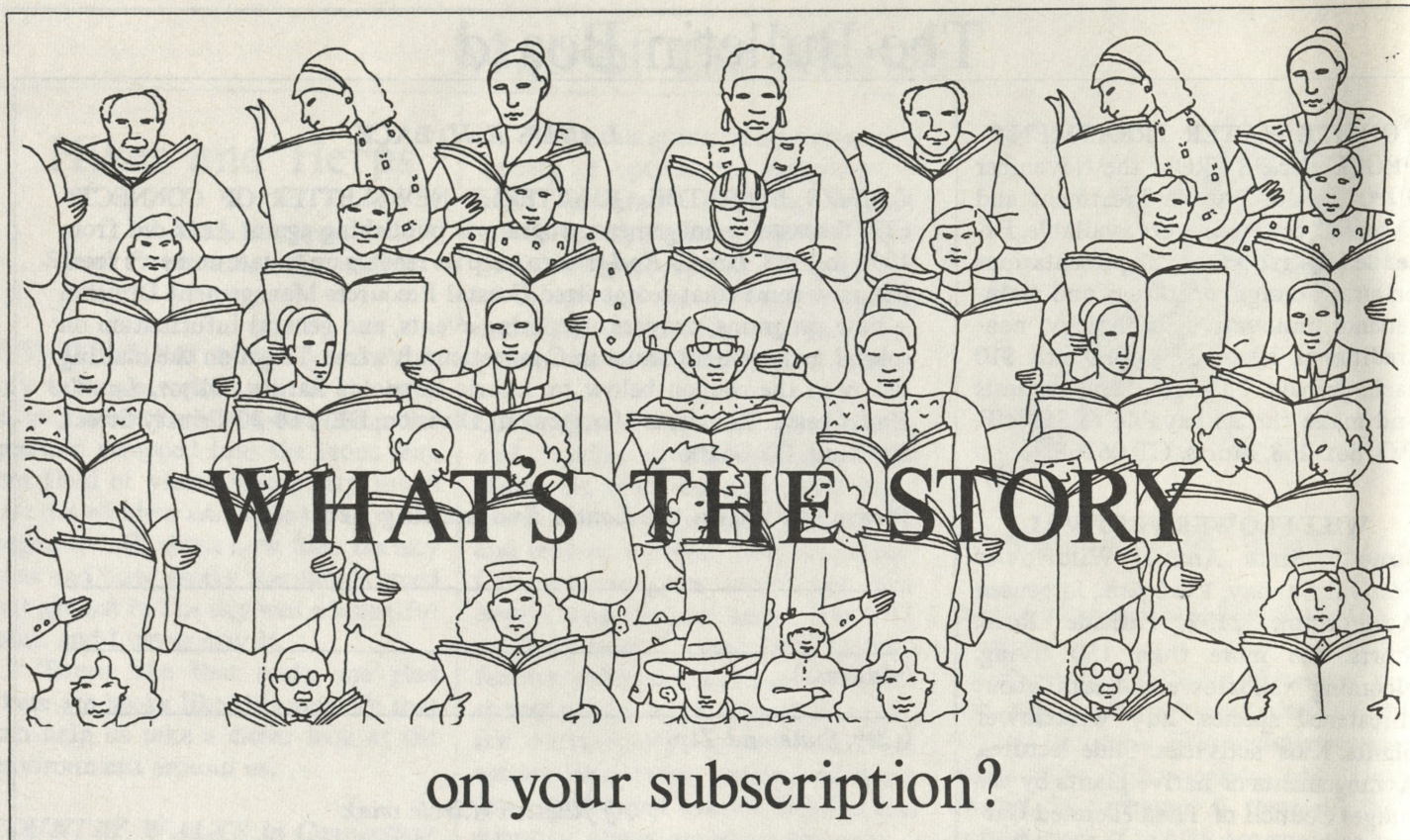
common at this season. Join our entomologist for a night and day exploration and observe, collect, and identify many of the tiny inhabitants who share our world. Information, registration: Kellogg Environmental Center, 500 Hawthorne Avenue, Derby; 734-2513. □

## Endnote

"Yet it is not our part to master all the tides of the world, but to do what is in us for the succor of those years wherein we are set, uprooting the evil in the fields that we know, so that those who live after may have clean earth to till. What weather they shall have is not ours to rule."

Gandalf,  
in *The Return of the King*,  
J.R.R. Tolkien





WE'RE STILL UP IN THE AIR. As we announced in the May issue, because of state budget cuts, the Department of Environmental Protection must *suspend* publication of *Connecticut Environment* with this issue.

We hope it will be a temporary hiatus. We are still actively looking for alternate sources of funding for the magazine that would let us resume publication after the beginning of the new fiscal year. (While subscriptions have, over the years covered printing and distribution of the magazine, they do not cover staffing and the proposed

budget eliminates our staff positions.)

If we succeed in finding alternate funding, you will see *Connecticut Environment* again before long, and we will extend your subscription to cover any missed issues.

If we don't succeed, we will notify subscribers, within the next few months, about our plans for making available refunds or alternate publications.

Meanwhile, our thanks ... for the longstanding support we have had from many of you, and for your current patience. □

CONNECTICUT  
**ENVIR<sup>ON</sup>MENT**

Department of Environmental Protection  
State Office Building, Rm. 112  
Hartford, CT 06106

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